

IES

Newsletter

Volume 2, Number 3
November - December 1985

The IES Newsletter is published by the Institute of Ecosystem Studies at the Mary Flagler Cary Arboretum. Located in Millbrook, New York, the Institute is a division of The New York Botanical Garden. All newsletter correspondence should be addressed to the Editor.

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EMIL KELLER

Perennial Garden Officially Opened

Millbrook is now the home of what will soon be one of the largest collections of ornamental perennials in this country. The Perennial Garden at the Mary Flagler Cary Arboretum's Gifford House Visitor and Education Center was officially opened on May 19th, 1985 and is now at the halfway point in its completion.

A year and a half ago, in May 1984, a committee of more than a dozen prominent local citizens, chaired by Oakleigh Thorne of Millbrook, was formed to coordinate a fund raising effort for the garden. The campaign has thus far raised \$163,251 from 32 donors toward the goal of \$200,000.

The garden will provide educational benefits as well as aesthetic ones. It is a living demonstration of the effective use of low maintenance perennials, incorporating the plants into various groupings for maximum effectiveness throughout the growing season. It will also serve as a teaching tool in the Institute's public education program, particularly to illustrate ecological and evolutionary themes.

The Perennial Garden was designed by former Arboretum Horticulturist Robert S. Hebb -- now executive director of the Lewis Ginter Botanical Garden in Richmond, Virginia -- and constructed by Bradley Roeller, Manager of the Display Gardens at IES. The Institute's horti-

culture staff will continue with construction and planting next year, and formal dedication is planned for 1987. The Perennial Garden is open to the public.

* * * * *

Flowering plants -- with the exceptions of trees and shrubs -- are classified either as annuals, biennials or perennials. Annuals grow from seed, flower and die all within a year, biennials have a two-year life cycle, and perennials live for many years. The above-ground parts of these flowering perennials die after the first hard frost but the root systems remain alive and send up new growth in the spring. The majority of perennials are herbaceous, with soft non-woody stems. (Trees and shrubs, which are also perennials, have woody stems and do not die back in winter.)

All the common garden perennials had their beginnings as wildflowers which were cultivated because of their beauty; centuries of selection and hybridization have, in many cases, made it almost impossible to determine the original ancestry of these now-domesticated flowering plants. The first perennials were cultivated in ancient times; many were introduced into Europe by the returning Crusaders, explorers and other travelers. Later, when colonists set sail westward, they brought along these plants whose hardiness guaranteed them a place in the New World.

Acorns to Oaks, Oaks to Acorns by Julia Bakeman Communications Intern

We have all seen squirrels gathering acorns in the fall, stuffing their cheeks and stashing food for the winter. They are fun to watch and they make perfect subjects for a photograph, but there is more to their diligence than meets the eye. From the small acorns, unwittingly planted by squirrels, grow the majestic oaks that men and women have long relied upon for many of life's necessities.



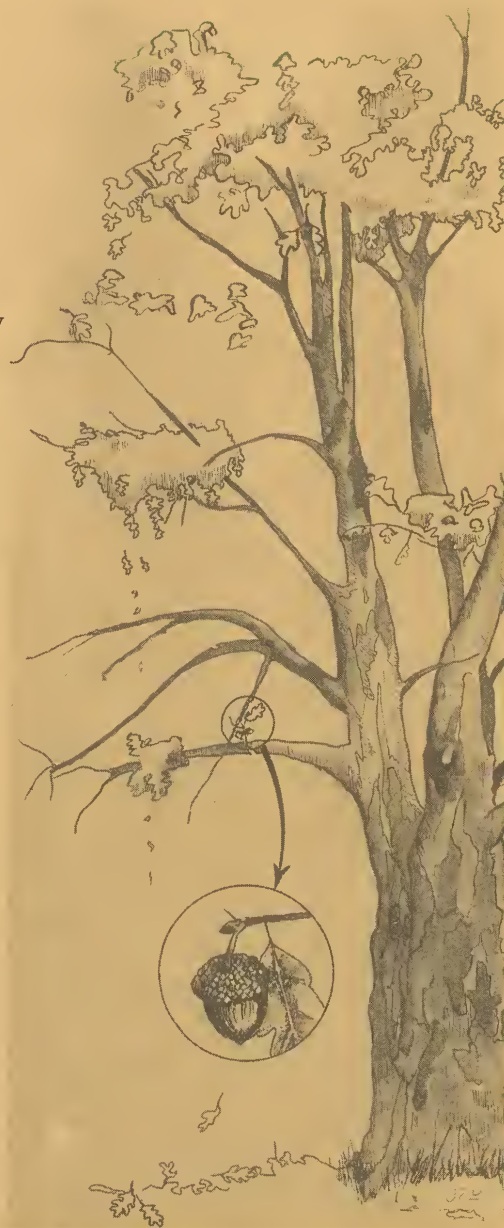
In nature it is not unusual for two different species, such as the oaks and squirrels, to interact in meeting their individual needs. In this case the oak provides a food source for the squirrels, who, in turn, offer a dispersal mechanism for the tiny plant embryo inside the acorn. Each autumn squirrels gather the nuts and keep track of where they hide them, for these nuts will be the animals' primary food supply in winter.

Research indicates that squirrels come back for 95-100% of the acorns they bury. Therefore, in most years almost all are eaten, leaving only a few to begin the long tree-growth process. Every seven to ten years, however, the oaks produce many more acorns than it is possible for the squirrels to harvest. As a result a relatively large number of the seeds can sprout during the next spring. Although the local squirrel population rises and falls in accordance with the supply of acorns, it lags a year or so behind in its response. Acorns are also a

favorite food for chipmunks, deer and wild turkeys, so those nuts that the squirrels miss will often be eaten by other woodland animals.

Oaks are among our oldest and largest trees. A fine example is the 250 year-old white oak, *Quercus alba*, which stands near the start of the Arboretum's Wappingers Creek Trail. Unlike animals, trees can continue growing for as long as they live -- some oaks, botanists estimate, can live as long as two thousand years. There are many different kinds of oaks, with the approximately 60 species native to the U.S. and Canada divided into two groups: white oaks and red oaks. Most of the former have leaves with rounded lobes and acorns which mature in one season, while the latter have leaves with pointed lobes and acorns which usually take two years to mature. Indians ate white oak acorns; they are still gathered in the east for the "Feast of Acorns," a yearly Indian festival in which flour is ground from the nuts. Red oak acorns on the other hand were eaten by Indians only after they were ground and washed to remove the bitter tannic acids.

It is no wonder that oak trees have for so long inspired respect and appreciation. They have provided food, shelter, and one of the finest hardwoods known. They play an integral part in many forest ecosystems, and these giants have also added beauty and majesty to the landscape. . . . All this from the compact unit that carries the genetic information for 2000 years: the acorn.



EM L KELLER

The fall meeting of The New York Botanical Garden Board of Managers was held at the Institute of Ecosystem Studies on October 19th. After the meeting, two recently completed facilities were dedicated: Bacon Flats Lodge provides living accommodations for IES students and visiting scientists, and a new wing of the Plant Science Building houses a spacious dining room, classroom, computer room, scientists' offices and -- in the basement -- a squash court and locker rooms. Cutting the ribbon outside the dining room are, l. to r., IES Director Gene E. Likens; Donald J. Bruckman, Chairman of the Board of Managers; NYBG President James M. Hester; and Edward A. Ames, Trustee of the Mary Flagler Cary Charitable Trust.

Staff Promotions



Left to right: Steve Bialousz, Owen Vose, Dick Livellara.

OWEN W. VOSE, Manager of Operations. Owen Vose, a resident of Verbank, began work at the Mary Flagler Cary Arboretum in 1974 as a maintainer. In spring 1985 he was promoted from supervising maintainer to his current position, and is now in charge of all maintenance, custodial, automotive and security operations at the Institute.

RICHARD A. LIVELLARA, Supervising Maintainer. Thirty-three years ago Dick Livellara was hired by The New York Botanical Garden as a laborer and soon after the Arboretum opened in 1971 he transferred here. Before his promotion, he was working at the Institute as a maintainer. He lives in Germantown.

STEPHEN A. BIALOUSZ, Supervising Mechanic. Steve Bialousz, from Salt Point, started work at the Arboretum in 1975 as a mechanic. He was promoted earlier this year from the position of head mechanic, and is in charge of the Institute's maintenance garage next to Conover House.

KAREN BUDWILL MOORE, Research Assistant-II. Beginning in 1977, Karen Moore spent three semesters at the Mary Flagler Cary Arboretum in a field work program through Vassar College. In summer 1981 she received a National Science Foundation award enabling her to work in the Arboretum's education department on an ethnobotany study, and in November of that year was hired as a Research Assistant-I to work with IES Chemical Ecologist Dr. Clive Jones. Her research deals with the population dynamics of the gypsy moth.



Education Program: New Staff Member

KATHLEEN HOGAN, Program Specialist. Kass Hogan joined the Institute's Education Program in September. Earlier this year she graduated from Antioch/New England in Keene, N.H., with a Master's of Science Teaching degree and General Science Teaching Certificate. She worked during the summer in Newfoundland as director of "Ocean Horizons", an education program sponsored by the Atlantic Center for the Environment. At the Institute her responsibilities include the design and implementation of an education program in ecology for elementary through high school students.



Plant Ecologist's Sabbatical at IES

Dr. Steward Pickett first heard about the Institute of Ecosystem Studies in 1983, soon after its inception, when he attended a seminar by the newly appointed IES Director Gene E. Likens. His interest awakened, he kept in touch with the Institute and met with Dr. Likens again in June of this year when the latter was the commencement speaker at Rutgers University in New Brunswick, New Jersey. Dr. Pickett had been a plant ecologist on the faculty at Rutgers for eight years and was planning his sabbatical when Dr. Likens invited him to spend a year at the Institute. He accepted enthusiastically and arrived in September.

Steward T.A. Pickett did his graduate work at the University of Illinois, studying the structure of oldfield communities. He then took a position at Rutgers, which is well known for its strengths in plant ecology. For some time he investigated the role of gaps in forest canopies -- open spaces in the overhanging branches and leaves -- including the effects of these gaps on the forest floor. Recently he and Dr. Peter White of the University of Tennessee and the U.S. Park Service co-edited a book, "The Ecology of Natural Disturbance and Patch Dynamics" (1985).

Dr. Pickett's continuing interest, however, was oldfields so he became involved in a long-term study of oldfield succession, or the stages of new plant growth in these formerly farmed plots of land. (In central New Jersey some typical oldfield colonizers are eastern red cedar, maples such as box elder and red maple, goldenrods and shrubs including multiflora rose, blackberries and raspberries.) Some 14 kilometers from New Brunswick is the Hutcheson Memorial Forest, where, 27 years ago, scientists set up permanent research plots so that long-term ecological observations could be made. Using fields of various ages within this protected land, Dr. Pickett studies plant interactions as well as plant responses to resources such as light, nutrients and water and to changes in those resources over time. He has found that succession in the area is

slower than in other parts of the country, and this discovery has led to new research, just getting underway.

In addition to these projects, Dr. Pickett has begun a study of plant architecture. He is measuring differences in branching structure and leaf display in the same species of shrubs growing in different habitats to see how the canopy, soil



environment and other factors affect those parameters. In spring, he will take advantage of the Institute's focus on long-term studies and permanent research plots to observe local plants and to refine his methodologies for measuring plant architecture.

In the meantime he is using his sabbatical to revise scientific manuscripts and to begin writing a textbook on plant ecology. "The atmosphere at the Institute is exciting and stimulating due, in part, to what I believe must be one of the highest densities of experienced plant ecologists anywhere in the country," Dr. Pickett comments. His year at IES will be a mutually beneficial one.

Visit by Chinese Scientists



EMIL KELLER

Four eminent ecologists from the Northeast Forestry University, Harbin, China visited the Hubbard Brook Experimental Forest, N.H. and the Institute of Ecosystem Studies from October 24-26th as part of a two-month tour of universities and ecology research sites in the U.S. At IES, from left to right are: Huang Pu-hua, Associate Professor of Dendrology; Mark McDonnell, IES Terrestrial Ecologist; Zhu Ning, Associate Professor of Forest Ecology; Joseph S. Warner, IES Administrator; Guo Wei-ming, Lecturer of Plant Physiology; Yeh-chu Wang, Head of Ecological Research Lab; Dr. Gary Lovett, IES Plant Ecologist; and Dr. Steward Pickett, Plant Ecologist on sabbatical leave from Rutgers.

Winter Calendar

COURSES

Course dates, lengths and fees vary. Some are part of longer certificate programs. Descriptions and registration information are highlighted in the current Education Program brochure; members receive this by mail and non-members should call to request a copy. Following is a list of winter courses; spring offerings will be listed in the next issue of the Newsletter.

Fundamentals of Gardening

Plant Propagation

Plants for Landscaping:

Woody Plants

Annuals and Perennials for

Landscaping

Edible Landscaping with

Fruits

Soil Testing and Fertility

Management

Intensive Organic Gardening

Weed Ecology

Flower Gardening: Wildflower,

Rock and Shade Gardens

Graphics

Landscape Design I. Analysis and

Schematic Design

Naturalistic Landscaping

Winter Fungi

Houseplant Care Clinic

ECOLOGICAL EXCURSIONS

Philadelphia Flower Show and

Longwood Gardens

Garden in the Woods

Cape Cod Ecology and Whale Watch

SUNDAY PROGRAMS

Public programs will be offered on the first and third Sundays of each month. All programs run from 2:00 - 4:00 pm and start at the Gifford House unless otherwise noted. They

are open to everyone at no cost.

Tentative schedule (please call the number below to confirm the day's topic):

January 5, Wildlife in winter,

J. McAninch

January 19, Lakes of the world,

G.E. Likens **

February 2, Laboratory tour,

J. Eaton (meet at the Plant Science Building at 2 p.m.)

February 16, African safari,

J. Cadwallader **

**slide presentations

ARBORETUM HOURS

Monday through Saturday, 9 a.m. to 4 p.m.; Sunday, 1-4 p.m. The Gift and Plant Shops are open Tuesday through Saturday 11 a.m. to 4 p.m.; Sunday 1 - 4 p.m. Closed on public holidays. All visitors must obtain a free permit at the Gifford House for access to the Arboretum. Roads closed when snow covered.

MEMBERSHIP

Take out a membership in the Mary Flagler Cary Arboretum. Benefits include a special member's rate for IES courses, a 10% discount on purchases from the Gift Shop, free subscription to *Garden* (the beautifully illustrated magazine for the enterprising and inquisitive gardener), the IES Newsletter, and parking privileges and free admission to the Enid A. Haupt Conservatory at The New York Botanical Garden in the Bronx. Individual membership is \$25; family membership is \$35. For information on memberships, contact Janice Claiborne at (914) 677-5343.

For more information, call (914) 677-5359 weekdays from 8:30-4:30

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